Meridian 1

Call Processor Field Memory Upgrade

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Introduction

This document describes how to increase the DRAM or Flash memory on Meridian 1 Motorolabased Call Processor cards.

Call Processor memory is upgraded using the following kits:

- 32 MB Flash Memory Kit -consists of two 16 MB Flash Modules
- 32 MB DRAM Memory SIMM Upgrade Kit - consists of one 32 MB DRAM SIMM

If you upgrade CP memory during a system or software upgrade, do not use these procedures. Instead, follow the procedures for system upgrades in *Hardware Upgrade Procedures* (553-3001-258), or software upgrades in *Software Conversion Procedures* (553-2001-320). Both documents include steps to upgrade CP memory.

CAUTION

Nortel Networks recommends that only properly trained distributor personnel perform this upgrade. Personnel should have spare CP cards on hand or they risk installation delay and/or system down time.

When you upgrade the CP memory in a nonredundant system, such as Option 51C, you interrupt call processing. If possible, schedule the replacement during the lowest traffic period.

You can purchase an accessory kit containing the "CP Card SIMMs Installation Video", an antistatic mat and antistatic bag. If you have the video, watch it before you upgrade the CP card memory. Then follow the steps in these procedures to upgrade the memory.

ESD Precautions

When you handle SIMMs, Flash memory and other components, you can cause damage from electrostatic discharge (ESD), known as "static electricity". This danger exists whether or not you can detect ESD.

Follow these easy steps to help prevent damage to the CP card or any components, such as SIMMs.

CAUTION

Flash modules and DRAM SIMMs are static-sensitive semiconductor devices which require that you take electrostatic discharge (ESD) precautions. Follow these instructions and/or the video tape to set up the antistatic mat and wrist strap included in the memory upgrade accessory kit.

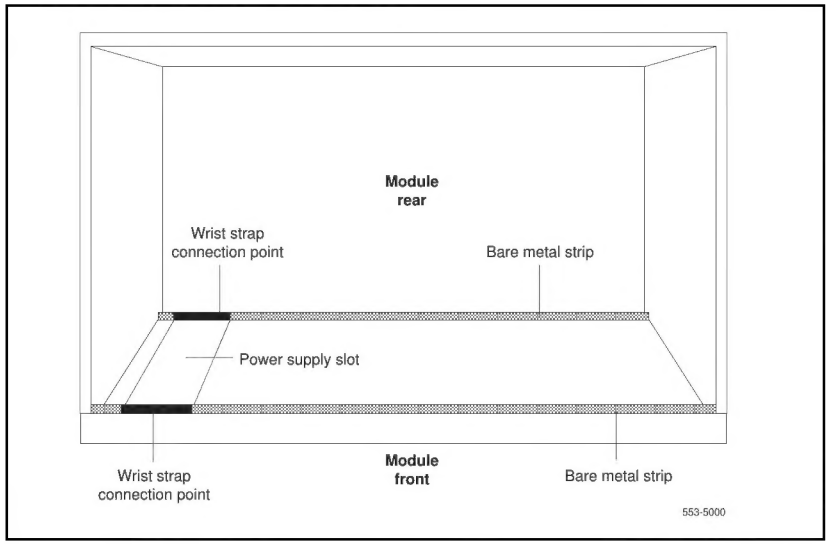
1 Choose and test an appropriate ground point to connect the antistatic mat, as described in the video tape. The video demonstrates how to test a North American-type power outlet ground. For power outlets in other countries, test an outlet ground according to local electrical code procedures.

   You can also use a chassis ground on a Meridian 1 card cage (see Figure 1).

2 Attach the ground wire for the antistatic mat to the ground point. If you are using a ground point on the Meridian 1 chassis, clip the alligator clip to the wrist strap ground connection point on the card cage you chose in step 1. Refer to "Equipment Handling Precautions" in *System Installation Procedures* (553-3001-210) for further information.

3 Place the antistatic wrist strap on your wrist and connect the ground wire for the wrist strap to the antistatic mat.

Figure 1
Static discharge ground points



Memory upgrade procedures

This section describes how to upgrade the memory on Meridian 1 Motorola-based Call Processor cards using the Flash or DRAM SIMM memory upgrade kits.

DRAM SIMM memory upgrades are supported on NT5D03, NT5D10, and NT9D19 CP cards. Flash Memory upgrades are supported on NT5D03 and NT5D10 CP cards.

Determine your Call Processor memory configuration

Before upgrading the Call Processor memory, determine the existing flash and DRAM SIMM configuration. This is accomplished through visual inspection (product labeling) or through Overlay 22.

Use the following procedure to determine your Call Processor memory configuration.

1 Log into your Meridian 1 system.

2 Load Overlay 22:

LD 22

PRT

CEQU

3 The example below shows the output for a 128 MB configuration:.

MCFN	S1B0	S1B1	S2B0	S2B1	S2B0	S3B1	S3B0	S3B1	FLSH	TOTL
	016	000	016	000	016	016	000	000	64	128

where:

- MCFN represents the call processor memory configuration
- S1 Slot 1 is the DRAM SIMM connector at position X5
- S2 Slot 2 is the DRAM SIMM connector at position X6
- S3 Slot 3is the DRAM SIMM connector at position X7
- S4 Slot 4 is the DRAM SIMM connector at position X8
- B0 Bank 0 represents the DRAM memory at logical Bank 0
- B1 Bank 1 represents the DRAM memory at logical Bank 1
- FLSH is the total amount of Flash memory populated on the Call Processor board
- TOTL the is the total Flash and DRAM memory populated on Call Processor board

To determine the amount of DRAM memory in a particular slot, add the Bank 0 and Bank 1 values for that slot number.

In the example in Step 3, the DRAM and Flash configuration is:

- X5 (DRAM memory) = 16 MB - the value 16 in S1Bo plus the value in 0 S1B1
- X6 (DRAM memory) = 16 MB - the value 16 in S2B0 plus the value 0 in S2B1
- X7 (DRAM memory) = 32 MB - the value 16 in S3B0 plus the value 16 in S3B1
- X8 (DRAM memory) = (empty slot) - the value 0 in S4B0 plus the value 0 in S4B1
- Flash Memory is 64 MB - the value 64 in FLSH
- Total Memory on the Call Processor card is 128 MB - the addition of all Flash and DRAM memory

When you determine the Call Processor memory configuration, proceed with the memory upgrade.

NT5D03, NT5D10, NT9D19 CP cards

Use the procedures in this section to complete the upgrade, or refer to "Install the DRAM SIMMs" on page 17 and "Install the Flash memory" on page 20 for detailed upgrade instructions.

Table 1 defines the memory upgrade paths for the following Motorola-based Call Processor cards:

- 68060E
- 68040
- 68030

To perform a DRAM and/or Flash upgrade:

- Locate your existing processor vintage in Table 1.
- Locate the target processor vintage in Table 1.
- Compare the existing SIMM configuration with the target configuration.
- Determine what SIMMs must be added or deleted from the existing location.
- Add or delete DRAM SIMMs as required to achieve the target memory configuration (see Figure 2 for the DRAM and Flash SIMM slot locations).
- Install the Flash memory modules in an available Flash connector.
- Install the label and label inserts. Discard all unused labels.

The upgrade is complete..

Table 1
Supported memory upgrade configurations

Total Memory	Total FLASH	Total DRAM	Call Processor			Slot 0	Slot 1	Slot 2	Slot 3
			68040**	68060	68060E	X5	X6	X7	X8
48	32	16	NT9D19AA NT9D19AB	NT5D10AA	NT5D03AA	16	0	0	0
64	32	32	NT9D19CA NT9D19CB	NT5D10CA	NT5D03BA	16	16	0	0
						32	0	0	0
80	32	48	NT9D19EA NT9D19EB	NT5D10EA	NT5D03CA	16	16	16	0
						16	32	0	0
96	32	64	NT9D19TA NT9D19TB	NT5D10TA	NT5D03TA	16	16	16	16
						16	16	32	0
						32	32	0	0
112*	32	80	NT9D19UA NT9D19UB	NT5D10UA	NT5D03UA	16	16	16	32
						16	32	32	0
128*	32	96	NT9D19VA NT9D19VB	NT5D10VA	NT5D03VA	16	16	32	32
						32	32	32	0
96	64	32	NT9D19HA NT9D19HB	N/A	N/A	16	16	0	0
						32	0	0	0

* This configuration requires Release 24 or later.

** The 68040 CP card is available in A and B vintages. When labeling the CP card, use the appropriate vintage suffix.

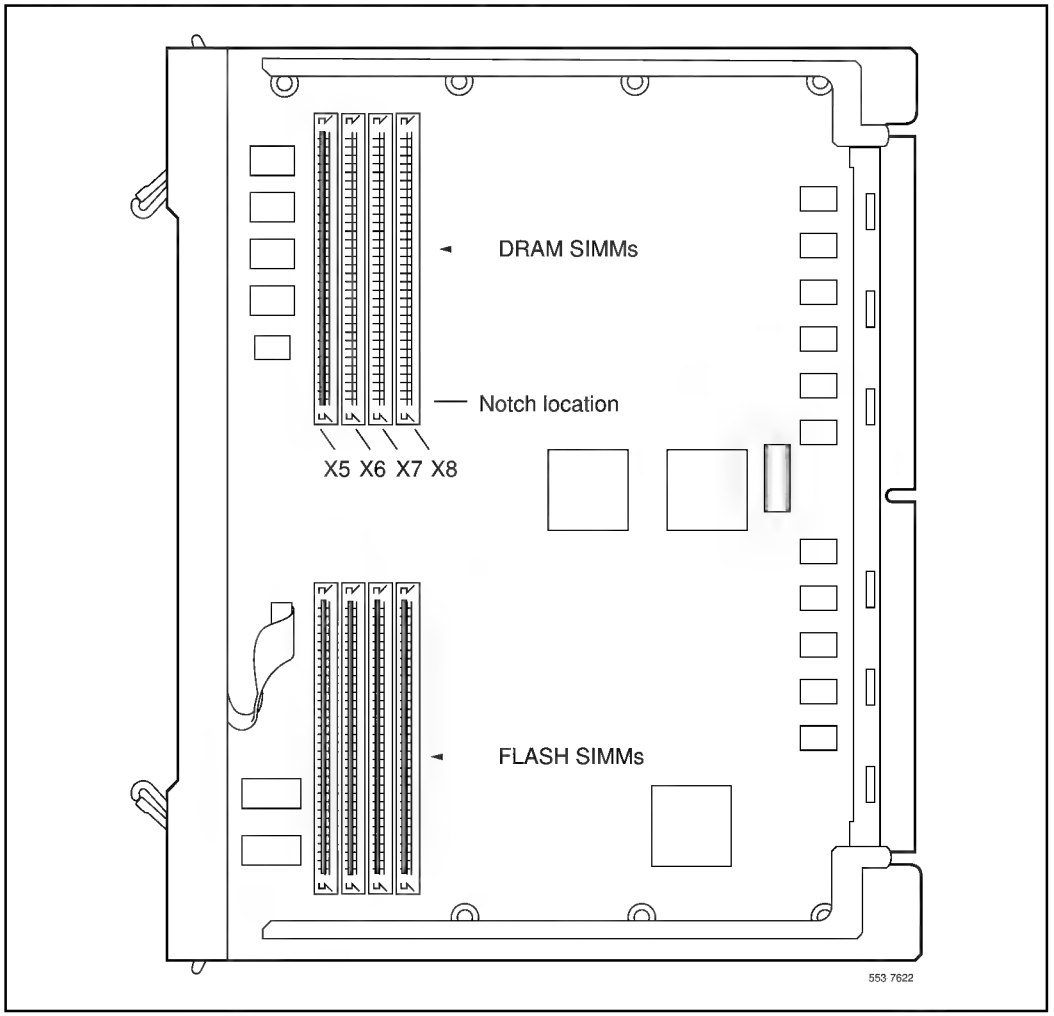
Table 1
Supported memory upgrade configurations

Total Memory	Total FLASH	Total DRAM	Call Processor			Slot 0	Slot 1	Slot 2	Slot 3
			68040**	68060	68060E	X5	X6	X7	X8
112	64	48	NT9D19JA NT9D19JB	NT5D10JA	NT5D03EA	16	16	16	0
						16	32	0	0
128	64	64	N/A	N/A	NT5D03FA	16	16	16	16
128	64	64	NT9D19FA NT9D19FB	NT5D10FB	NT5D03FB	16	16	16	16
						16	16	32	0
						32	32	0	0
144*	64	80	NT9D19NA NT9D19NB	NT5D10NA	NT5D03NA	16	16	16	32
						16	32	32	0
160*	64	96	NT9D19PA NT9D19PB	NT5D10PB	NT5D03PB	16	16	32	32
						32	32	32	0

* This configuration requires Release 24 or later.

** The 68040 CP card is available in A and B vintages. When labeling the CP card, use the appropriate vintage suffix.

Figure 2
NT9D19, NT5D10 or NT5D03 DRAM and Flash location



Install the DRAM SIMMs

1 Place the CP card SIMM-side up on the antistatic mat.

2 Locate the DRAM SIMM connectors (see Figure 2 on page 16).

3 Determine if your memory upgrade requires you to remove an existing DRAM SIMM (see Table 2.) If removal is required, remove the SIMM from the highest numbered slot available first (X8, X7, X6, etc.) To remove the DRAM SIMM:

   a Use a nonconducting screw driver to carefully move each latch away first from one end of the SIMM, and then the other end. The SIMM pivots away from the others until it is at approximately a 50- to 70-degree angle to the board (see Figure 2).

   b If the SIMM does not release from the latches, use your thumbnails, one on each latch, to release the latches. If the board has plastic latches, the latches are located on the side facing the card faceplate. If the board has metal latches, the levers protrude from each latch. Carefully move the latches outward simultaneously until the SIMM pivots away from the others and is at approximately a 50- to 70-degree angle to the board (see Figure 2 on page 16).

CAUTION

Do not mix up the 32 MB DRAM SIMM with the 16 MB DRAM SIMM. The 16 MB DRAM SIMM is labeled A0662646 or A0614334; the 32 MB DRAM SIMM is labeled A0634230. Older 16 MB DRAM SIMMs may not be labeled.

4 Working from left to right, install the 32 MB SIMM(s) in the SIMM location designated X5, X6, X7 or X8 where appropriate (see Table 2):

   a Orient the new SIMM so that the notch at one end of the SIMM aligns with the key at one end of the SIMM socket. Hold the SIMM at approximately a 50- to 70-degree angle and gently insert the SIMM into the socket. See Figure 3.

5 Using your thumbs and index fingers only (at the upper corners of the SIMM), carefully lean the SIMM toward the others until it is upright and the latch at each end of the SIMM snaps into place. If necessary, use a nonconducting screwdriver to help open each latch while you move the SIMM into the upright position.Apply the generic label over the existing label.

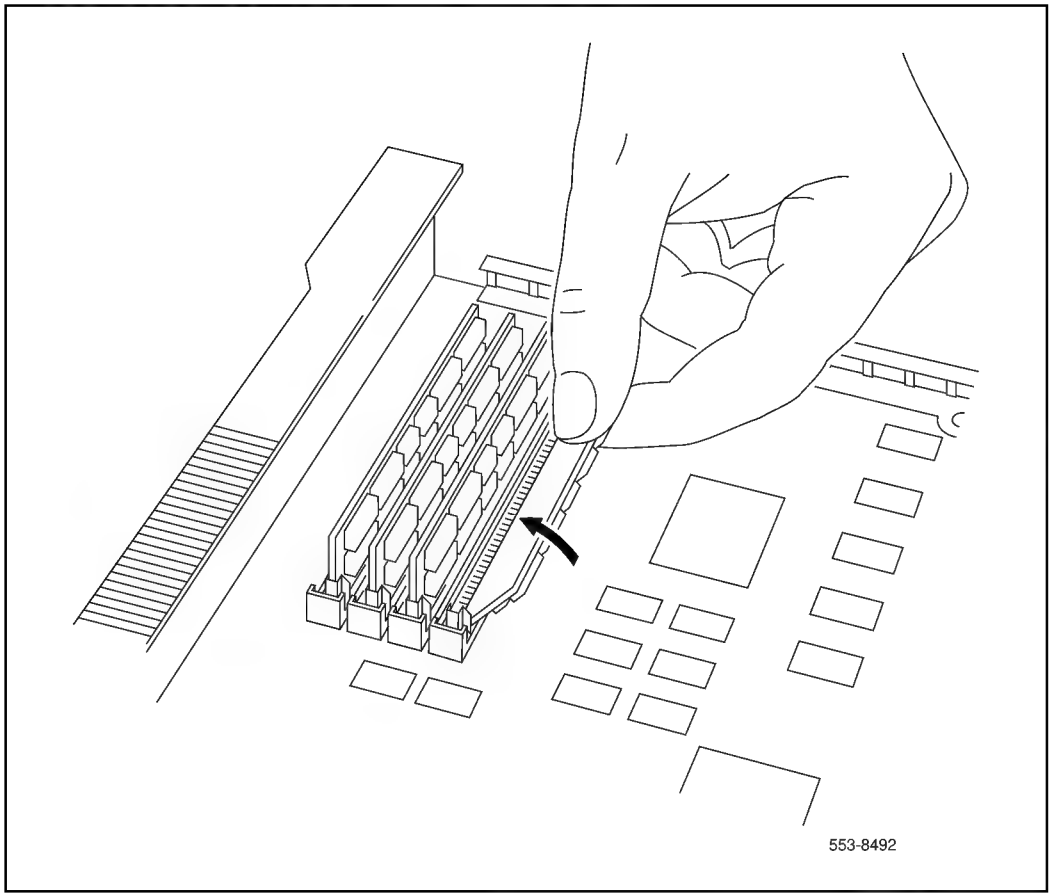
6 Select the correct labels for your CP card from the sheet provided.

7 Place the CP/memory configuration label at the top of the faceplate.

8 Place the engineering code/release level label on the bottom of the faceplate.

9 Discard unused labels.

Figure 3
NT9D19, NT5D10, NT5D03 card DRAM SIMM installation



Install the Flash memory

> **CAUTION**
> **Do not** remove the existing Flash SIMMS from the Call Processor board.

1 Place the CP card SIMM-side up on the antistatic mat.

2 Determine the location of the new Flash SIMM connectors (see Table 2).

3 Install the new 32 MB Flash SIMM module in the appropriate slot:

- **a** Orient the new SIMM so that the notches on the bottom of the SIMM align with the notches on the connector.
- **b** Gently guide the Flash SIMM toward the connector socket.
- **c** When the Flash SIMM makes contact with the connector, apply pressure to one end of the Flash SIMM and close the latch connector.
- **d** Apply pressure to the other end of the Flash SIMM and close the latch connector.

4 Apply the generic label over the existing label.

5 Select the correct labels for your CP card from the sheet provided.

6 Place the CP/memory configuration label at the top of the faceplate.

7 Place the engineering code/release level label on the bottom of the faceplate.

8 Discard unused labels.

9 Update the Flash ROM using the Software Install Tool:

Note: For dual CPU systems, verify that the system is operating in split mode before activating the Software Install Tool.

- **a** To activate the Software Install Tool, insert the Install disk into the inactive the IODU/C (or IOP/CMDU). Press the MAN RST button on the Call Processor card in the inactive Core.
- **b** From the Main Menu, select <G>, to update the Flash ROMs from the hard disk.

c Select <Y> to confirm installation.

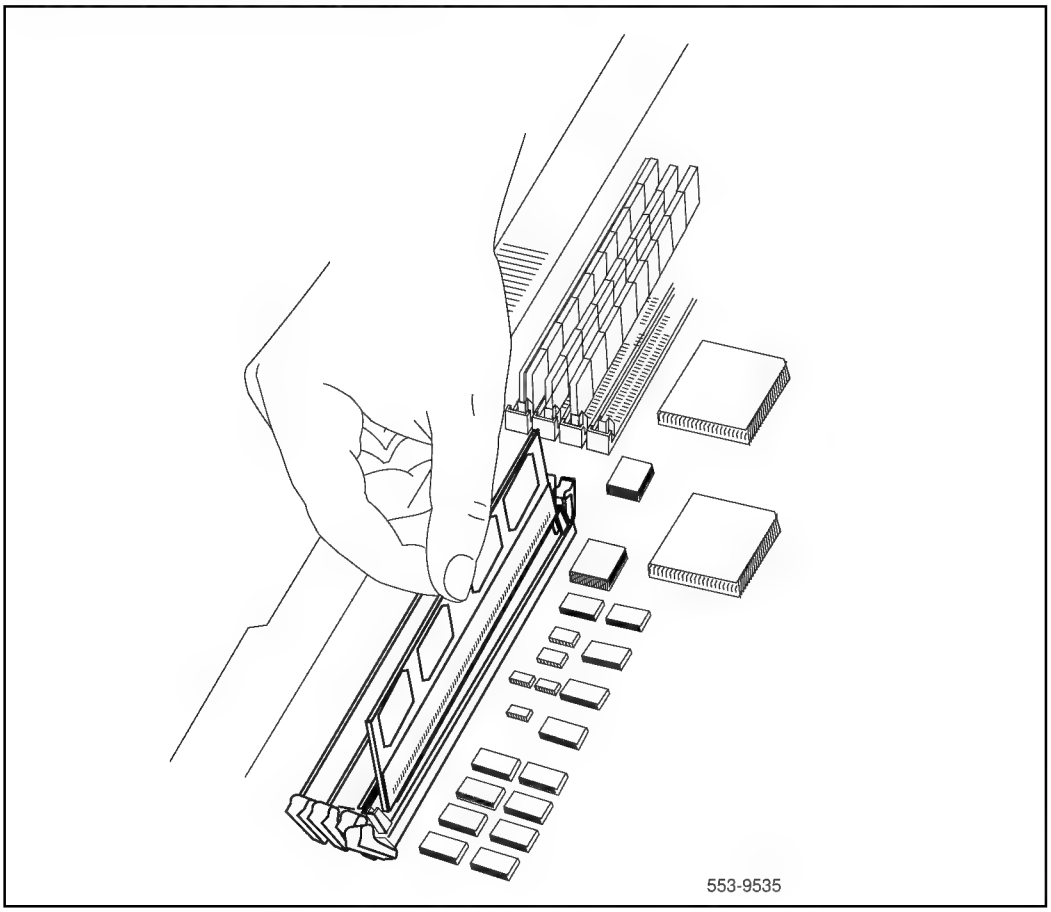
d Press <CR> to return to the Install Menu.

e Upon successful installation of software on the Flash ROMs, select <E> to update the CP-BOOT ROM.

f Repeat this procedure for the second Core.

The Flash memory upgrade is complete.

Figure 4
NT5D10 and NT5D03 card Flash module installation



NT6D66 upgrade procedures

To upgrade a 24 MB NT6D66 CP card to 48MB you:

- Remove two 4MB SIMMs from the CP card
- Install two 16MB SIMMs onto the CP card

Install the memory SIMMs

1 Place the CP card SIMM-side up on an antistatic mat.

2 Locate and remove the two 4MB SIMMs designated T5 and T6. See Figure 5 on page 23).

3 Remove the SIMM from location T6 first, then from T5:

a Using a non-conductive screw drive, carefully move each latch away first from one end of the SIMM, and then the other end. The SIMM pivots away from the others until it is at approximately a 50- to 70-degree angle to the board (see Figure 5).

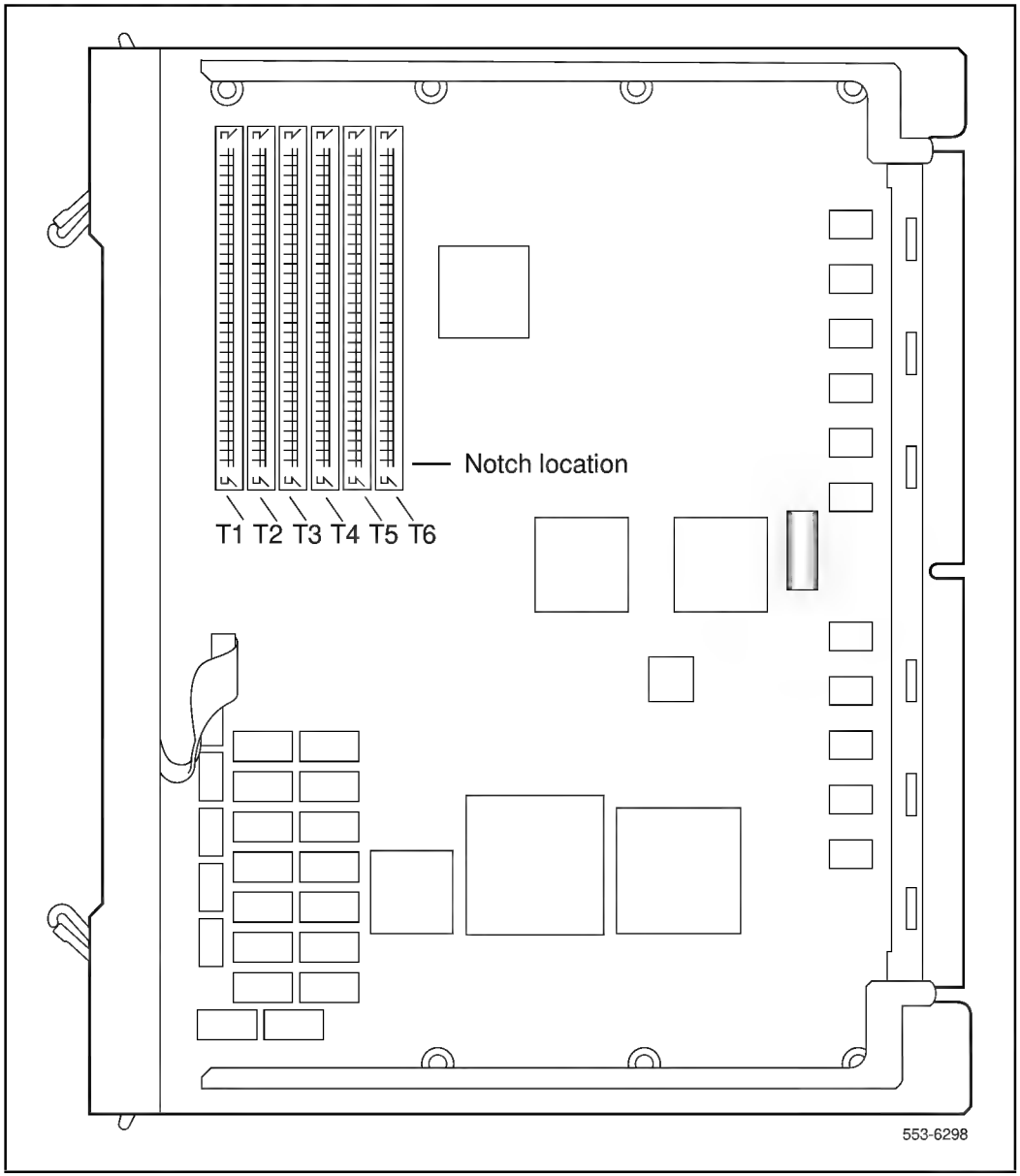
Note: If, using a nonconducting screw driver, the SIMM does not release from the latches, use your thumbnails, one on each latch, to release the latches: for plastic latches, the latches are located on the side facing the card faceplate; for metal latches, the levers protrude from each latch. Carefully move the latches outward simultaneously until the SIMM pivots away from the others and it is at approximately a 50- to 70-degree angle to the board (see Figure 5 on page 23).

b Gently pull the SIMM out of the socket.

4 Install each of the two new 16 MB SIMMs beginning with SIMM T5:

a Orient the new SIMM so that the notch at one end of the SIMM aligns with the key at one end of the SIMM socket (see Figure 5 on page 23).

Figure 5
NT6D66AA/DA CP card SIMM location

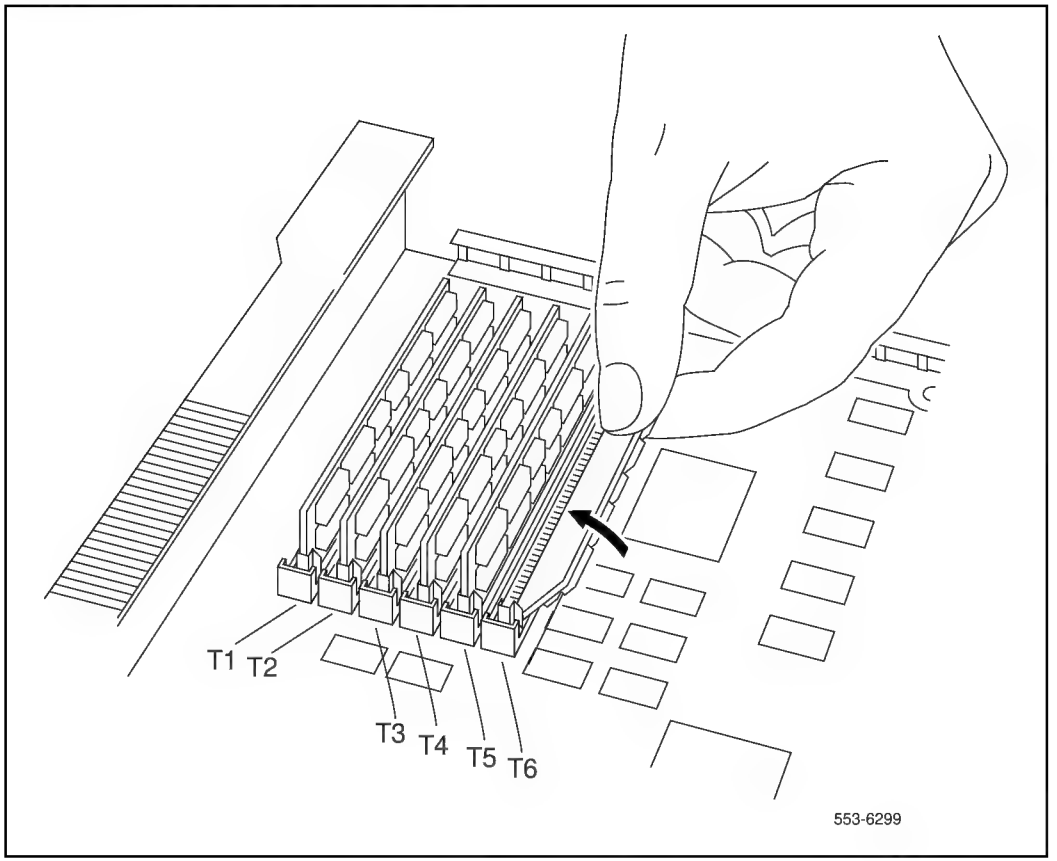


b Hold the SIMM at approximately a 50- to 70-degree angle and gently insert the SIMM into the socket (see Figure 5 on page 23).

CAUTION

Do not force the SIMM into the socket. Any damage caused to the socket will require replacement of the NT6D66 CP card.

Figure 6
NT6D66AA/DA CP card SIMM Installation



c Use your thumbs and index fingers only (at the upper corners of the SIMM), to carefully lean the SIMM toward the others until it is upright and the latch at each end of the SIMM snaps into place. If necessary, use the nonconducting screw driver to help open each latch while you move the SIMM into the upright position.

The NT6D66 CP card memory upgrade is complete.

Meridian 1

Call Processor Field Memory Upgrade

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